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CENTRAL INTELLIGENCE AGENCY
INFORMATION REPORT

REPORT

CD NO.

25X1

COUNTRY East Germany

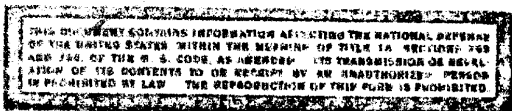
DATE DISTR 23 February 1964

SUBJECT East German Specifications for High-Vacuum Materials

NO OF PAGES 7

PLACE
ACQUIREDNO OF ENCLS.
(LISTED BELOW)DATE OF
INFO.SUPPLEMENT TO
REPORT NO.

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THIS IS UNEVALUATED INFORMATION

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1. The Material Supply Department of Main Administration RFT of the Ministry for Machine Construction has established a table of specifications for the high-vacuum industry enterprises under the Main Administration, listing technical-chemical specifications for a number of materials used in the construction of high-vacuum tubes. The materials in question have thus far been imported, but there are plans to produce some of them in East Germany in the future.

2. The following is the table of specifications:

1. Nickel E and Nickel EA

a. Chemical analysis:

Manganese less than 0.4%

Carbon less than 0.1%

Sulfur less than 0.01%

Iron less than 0.3%

Copper less than 0.2%

Silicon less than 0.1%

Lead less than 0.005%

Zinc less than 0.005%

Cadmium less than 0.005%

Arsenic less than 0.005%

Cobalt less than 0.5%

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25 YEAR RE-REVIEW

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Nickel plus cobalt more than 99.0%

b. Gas release Nickel E:

Maximum total amount 1.5 ml/10g

Final pressure 0.02 mm/10g/500ml

c. Gas release Nickel EA:

Maximum total amount 1 ml/10g

Final pressure 0.01 mm/10g/500ml

II. Nickel A

a. Chemical analysis:

Magnesium less than 0.025% to 0.064%

Manganese less than 0.03%

Carbon less than 0.08%

Sulfur less than 0.005%

Iron less than 0.1%

Copper less than 0.1%

Silicon less than 0.07%

Lead less than 0.005%

Zinc less than 0.005%

Cadmium less than 0.005%

Arsenic less than 0.005%

Cobalt less than 0.5%

Nickel plus cobalt more than 99.8%

III. Nickel C

a. Chemical analysis:

Magnesium less than 0.065 to 0.15%

Manganese less than 0.05%

Carbon less than 0.08%

Sulfur less than 0.007%

Iron less than 0.1%

Copper less than 0.1%

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Silicon less than 0.07%
Lead less than 0.005%
Zinc less than 0.005%
Cadmium less than 0.005%
Arsenic less than 0.005%
Cobalt less than 0.5%
Nickel plus cobalt more than 99.8%

IV. Nickel N

Chemical analysis: same as for Nickel C with the magnesium contents replaced by aluminum contents less than 0.2%

V. Iron E and Iron EAa. Chemical analysis:

Carbon less than 0.07% to 0.1%
Silicon less than 0.05%
Manganese less than 0.25 to 0.5%
Phosphorous less than 0.04%
Sulfur less than 0.04%
Phosphorous plus sulfur less than 0.07%
Copper less than 0.1%
Aluminum (metallic) less than 0.04% to 0.08%
Iron: the remainder.

b. Gas release Iron E:

Maximum total amount 1.5 ml/10g
Final pressure 0.04 mm/10g/500ml

c. Gas release Iron EA:

Maximum total amount 1.0 ml/10g
Final pressure 0.01 mm/10g/500ml

The above indications for Iron E and Iron EA are for a heating time of 10 minutes.

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VI. OFHC-Coppera. Chemical analysis:

Phosphorous less than 0.005%

Tin less than 0.005%

Arsenic less than 0.005%

Bismuth less than 0.005%

Lead less than 0.005%

Magnesium less than 0.01%

Iron less than 0.005%

Silicon less than 0.01%

Zinc less than 0.005%

Carbon less than 0.01%

Cuprous oxide less than 0.003%

Copper more than 99.95%

VII. Cuni-45 for image tubes as established by DIN sheet 1726.VIII. Ferronickela. Chemical analysis:

Copper 17.0 to 18.0%

Nickel 28.0 to 30.0%

Manganese less than 0.25%

Carbon less than 0.2%

Iron: the remainder

IX. Ferronickel 42a. Chemical analysis:

Nickel 42 to 45%

Sulfur less than 0.05%

Chromium less than 0.1%

Manganese less than 0.5%

Carbon less than 0.05%

Iron: the remainder

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X. Chromium-Irona. Chemical analysis:1. Cr-18

Carbon less than 0.05%
Chromium 19 plus minus 1%
Nickel less than 0.25%
Molybdenum less than 1%
Manganese less than 1.25%
Silicon less than 0.5%
Iron: the remainder

2. Cr-13

Carbon less than 0.05%
Chromium 30 plus minus 2%
Manganese less than 0.3%
Silicon less than 0.6%
Iron: the remainder

XI. P2-Irona. Chemical analysis:

Carbon 0.04 to 0.08%
Silicon less than 0.03%
Manganese 0.4 to 0.6%
Phosphorous less than 0.040%
Sulfur less than 0.040%
Phosphorous plus sulfur less than 0.070%
Oxygen 2 less than 0.007% (but not as oxides)
Iron: the remainder

b. Gas release:

Maximum total amount 1.2 ml/10g
Final pressure 0.01 Torr/500ml/10g
Duration of heating: 15 minutes.

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XII. PN-Irona. Core Material (Kernwerkstoff)

Carbon 0.04 to 0.08%

Silicon less than 0.03%

Manganese 0.4 to 0.6%

Phosphorous less than 0.04%

Sulfur less than 0.040%

Phosphorous plus sulfur less than 0.070%

Oxygen 2 less than 0.007% (but not in the form of oxides)

Iron: the remainder.

b. Nickel plating - manganese deoxidized nickel band (Nickelueberzug - Mangandesoxydiertes Nickelband)

Manganese less than 0.3%

Carbon less than 0.1%

Sulfur less than 0.01%

Iron less than 0.3%

Copper less than 0.2%

Silicon less than 0.1%

Lead less than 0.005%

Zinc less than 0.05%

Cadmium less than 0.005%

Arsenic less than 0.005%

Cobalt less than 0.5%

Nickel plus Cobalt more than 99.0%

c. Gas release:

Maximum total amount 1 ml/10g

Final pressure 0.01 mm/10g/500ml

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XIII. N2-Iron E and N2-Iron BA

- a. Core Material (low-carbonized aluminum deoxidized steel band)
(niedrig gekohltes aluminiumdesoxydiertes Stahlband)

Carbon 0.07% to 0.1%

Silicon less than 0.05%

Manganese 0.25 to 0.5%

Phosphorous less than 0.04%

Sulfur less than 0.04%

Phosphorous plus sulfur less than 0.07%

Aluminum (metallic) 0.04 to 0.08%

Copper less than 0.1%

Iron: the remainder.

- b. Plating Material - Manganese deoxidized nickel band
(Plattierungswerkstoff) - (mangandesoxydiertes Nickelband)

Manganese less than 0.5%

Carbon less than 0.1%

Sulfur less than 0.1%

Iron less than 0.3%

Copper less than 0.2%

Silicon less than 0.1%

Lead less than 0.005%

Zinc less than 0.005%

Cadmium less than 0.005%

Arsenic less than 0.05%

Cobalt less than 0.5%

Nickel plus Cobalt more than 99.0%

- c. Gas release N2-Iron E

Maximum total amount 1.5 ml/10g

Final pressure 0.03 mm/10g/500ml

- d. Gas release N2-Iron BA

Maximum total amount 1 ml/10g

Final pressure 0.01 mm/10g/500ml

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